

CLAIMS

1. (Currently Amended) A tandem gas seal assembly for forming a seal between a rotor and a casing of a rotary machine, the tandem gas seal comprising:

two sealing stages for mounting axially adjacent to one another in the rotary machine, each of the sealing stages comprising a rotating sub-assembly for mounting on the rotor and a stationary sub-assembly for mounting in the casing, wherein:

each rotating sub-assembly includes a support sleeve mounted on the rotor, a rotating mating ring with a front face,[[and]] a locking sleeve slideably mounted on top of the support sleeve and a fastener releasably securing the locking sleeve and the support sleeve to one another, a first end of the locking sleeve bearing against the front face of the mating ring thereby retaining the mating ring in the rotating sub-assembly;

each rotating sub-assembly of the two sealing stages including the support sleeve is totally separable from one another and each stationary sub-assembly of the two sealing stages is totally separable from one another,

each of the two stages is capable of functioning as a seal when separated from the other, and

mating formations formed at adjacent axial ends of the rotating sub-assembly of the two sealing stages to maintain the two sealing stages in axial alignment with one another.

2. (Previously Canceled)

3. (Previously Presented) The tandem gas seal assembly of claim 1, wherein the mating formations include an annular collar projecting axially from an axial end of the rotating sub-assembly of a first of the two sealing stages and the annual collar fitting over a cylindrical end region of rotating sub-assembly of the second of the two sealing stages.

4. (Previously Presented) The tandem gas seal assembly of claim 3, further comprising means for effecting a gas tight seal between the mating formations of each rotating assembly of the two sealing stages.
5. (Original) The tandem gas seal assembly of claim 1, wherein each of the two sealing stages is dynamically balanced separately from the other of the two sealing stages.
6. (Original) The tandem gas seal assembly of claim 1, wherein the two sealing stages directly abut one another and are retained on the rotor by means of a lock nut applying an axial force to only an outer of the two sealing stages.
7. (Currently Amended) A rotary machine comprising:
- a rotor;
 - a casing; and
 - a tandem gas seal for forming a seal between the rotor and the casing of the rotary machine, the tandem gas seal including two sealing stages mounted axially adjacent to one another in the rotary machine, each stage comprising a rotating sub-assembly mounted on the rotor and a stationary sub-assembly mounted in the casing, wherein
 - each rotating sub-assembly includes a support sleeve mounted on the rotor, a rotating mating ring with a front face,[[and]] a locking sleeve slideably mounted on top of the support sleeve and a fastener releasably securing the locking sleeve and the support sleeve to one another, a first end of the locking sleeve bearing against the front face of the mating ring thereby retaining the mating ring in the rotating sub-assembly;
 - each of the rotating sub-assembly of the two sealing stages including the support sleeve is totally separable from one another and each of stationary sub-assembly of the two sealing stages is totally separable from one another,
 - each of the two sealing stages is capable of functioning as a seal when separated from the other stage, and

mating formations formed at adjacent axial ends of each rotating sub-assembly of the two sealing stages to maintain the two sealing stages in axial alignment with one another.

8. (Previously Canceled)

9. (Previously Presented) The rotary machine of claim 7, wherein the mating formations include an annular collar projecting axially from an axial end of the rotating sub-assembly of a first of the two sealing stages and the annual collar fitting over a cylindrical end region of the rotating sub-assembly of the second of the two sealing stages.

10. (Previously Presented) The rotary machine of claim 9, wherein the tandem gas seal further comprises means for effecting a gas tight seal between the mating formations of each rotating assembly of the two sealing stages.

11. (Original) The rotary machine of claim 7, wherein each of the two sealing stages is dynamically balanced separately from the other of the two sealing stages.

12. (Original) The rotary machine of claim 7, wherein the two sealing stages directly abut one another and are retained on the rotor by means of a lock nut applying an axial force to only an outer of the two sealing stages.

13. (Currently Amended) A tandem gas seal assembly for forming a seal between a rotor and a casing of a rotary machine, the tandem gas seal comprising:

a first sealing stage and a second sealing stage, where each of the first sealing stage and the second sealing stage are adapted for mounting axially adjacent to one another on a machine rotor, each of the first sealing stage and the second sealing stage includes a rotating sub-assembly for mounting on the rotor and a stationary sub-assembly for mounting in the casing wherein

each rotating sub-assembly includes a support sleeve mounted on the rotor, a rotating mating ring with a front face, [[and]]a locking sleeve slideably mounted on top of the support sleeve a fastener releasably securing the locking sleeve and the support sleeve to one another, and a first end of the locking sleeve bearing against the front face of the mating ring thereby retaining the mating ring in the rotating sub-assembly;

each rotating sub-assembly of the first sealing stage and the second sealing stage including the support sleeve is totally separable from one another and each stationary sub-assembly of the two stages is totally separable from one another,

each of the first sealing stage and the second sealing stage is capable of functioning as a seal when separated from the other stage, and

mating formations formed at adjacent axial ends of the rotating sub-assembly of the first sealing stage and the rotating sub-assembly of the second sealing stage to maintain the first sealing stage in axial alignment with the second sealing stage.

14. (Previously Canceled)

15. (Currently Amended) The tandem gas seal assembly of claim 13, wherein the mating formations include an annular collar projecting axially from an axial end of the rotating sub-assembly of [[a]] the first sealing stage and the annual collar fitting over a cylindrical end region of the rotating sub-assembly of the second sealing stage.

16. (Previously Presented) The tandem gas seal assembly of claim 15, further comprising means for effecting a gas tight seal between the mating formations of each rotating sub-assembly of the first sealing stage and the second sealing stage.

17. (Previously Presented) The tandem gas seal assembly of claim 13, wherein the first sealing stage is dynamically balanced separately from the second sealing stage.

18. (Previously Presented) The tandem gas seal assembly of claim 13, wherein the first sealing stage and the second sealing stage are directly abut one another and are retained on the rotor by means of a lock nut applying an axial force to only an outer of the first sealing stage and the second sealing stage.